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# PATENT SPECIFICATION

584743



Application Date: June 14, 1944

No. 11380/44.

Complete Specification Left: June 14, 1945.

Complete Specification Accepted: Jan. 22, 1947.

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## PROVISIONAL SPECIFICATION

### Improvements in or relating to Magazines for Rounds of Ammunition

We, HYDRAN PRODUCTS LIMITED, a British Company, of Hydra Works, Gresham Road, Staines, in the county of Middlesex, and LEWIS MOTLEY, a British subject, of "Wren House", 13, North Side, Clapham Common, London, S.W.4, do hereby declare the nature of this invention to be as follows:—

This invention relates to magazines for 10 rounds of ammunition.

A type of magazine for rounds of ammunition is known which consists of a vertical chute in which the rounds, arranged horizontally, are stored, and down which they 15 are adapted to be fed to the outlet at the lower end, through which they pass successively to the gun. A magazine of this type has been proposed which, throughout the major extent of its height, is wide enough 20 to contain two vertical rows of the rounds, and which narrows in width at the lower outlet end so that only one round at a time passes through the outlet. In such a magazine the width of the chute throughout the 25 major extent of its height has been such that the rounds of the two vertical rows are in staggered relation, the rounds of each row being in contact with the adjacent wall of the chute on the one side and with the rounds of the other row on the other side, and each round of each row being also 30 in contact with the rounds immediately above it and below it in the same row.

In magazines of this type, owing to friction, a considerable amount of pressure is required to feed the rounds downwardly and it is the object of the present invention to provide an improved magazine of this general type in which the pressure required for downward feed is much less than before.

The invention consists broadly in the arrangement that the chute is made of such a width that the staggered inter-engagement of the rounds of the two rows main-

tains the rounds of each row out of engagement with each other. With this arrangement a free rolling movement is possible for all the rounds. Thus it will be seen that the rounds on the left hand side of 50 the chute will tend to roll in a clockwise direction down the left hand wall of the chute and those on the right hand side will tend to roll in a counter clockwise direction down the right hand wall of the chute, and 55 this tendency will be unimpeded since the only rounds which are in engagement with each other are those of different rows and which are accordingly tending to rotate in opposite directions, and this they can 60 freely do without appreciable frictional rub. As they are pressed downwardly by a roller shoe therefore the rounds can freely follow their tendency to roll down their respective walls without any appreciable frictional rub between themselves.

It will be understood that it is only necessary to make the walls of the chute so narrow that the rounds of each row are just out of engagement with each other. 70 A clearance of a small fraction of an inch between said rounds is quite sufficient.

In practice the uppermost round of the magazine is pressed downwardly by means of a presser comprising two small rollers 75 which engage said round on each side of the dead centre. Thus friction between the rotating uppermost round and the presser element is prevented.

Although the magazine has been 80 referred to as vertical, it is quite clear that it could be orientated in any other direction.

Dated this 14th day of June, 1944.

A. A. THORNTON,  
Chartered Patent Agents,  
7, Essex Street, Strand,  
London, W.C.2.  
For the Applicants.

## COMPLETE SPECIFICATION

### Improvements in or relating to Magazines for Rounds of Ammunition

We, HYDRAN PRODUCTS LIMITED, a British Company, of Hydra Works, Gresham Road, Staines, in the county of Middlesex, and LEWIS MOTLEY, a British subject, of "Wren House", 13, North Side, Clapham Common, London, S.W.4, do hereby declare the nature of this invention to be as follows:—

[Price 1/-]

subject, of "Wren House", 13, North Side, Clapham Common, London, S.W.4, do hereby declare the nature of this invention and in what manner the same is to be 5 performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to magazines for rounds of ammunition.

10 A type of magazine for rounds of ammunition is known which consists of a chute in which the rounds, arranged transversely are stored, and along which they are adapted to be fed to the outlet through 15 which they pass successively to the gun.

In magazines of this type, owing to friction, a considerable amount of pressure is required to feed the rounds, and it is the 20 object of the present invention to provide an improved magazine of this general type in which the pressure required for downward feed is much less than before.

The invention consists broadly of a 25 magazine for rounds of ammunition, comprising a chute through which the rounds are adapted to be fed in a direction transversely to their length, said rounds being arranged in two rows in 30 staggered relation, the chute being made of such a width that the staggered inter-engagement of the rounds of the two rows maintains the rounds of each row out of 35 engagement with each other, wherein the rounds are free to move through the chute and with a rolling movement with each other and with the walls of the chute.

In order that the invention may be the 40 more clearly understood a magazine in accordance therewith will now be described, reference being made to the accompanying drawings, wherein:—

Figure 1 is a sectional side elevation of the magazine;

Figure 2 is a sectional end elevation of 45 the same.

Referring to these drawings the magazine consists of a vertical chute 1 in which the rounds 2, arranged horizontally, are stored, and down which they are adapted 50 to be fed to the outlet 3 at the lower end, through which they pass successively to the gun. Throughout the major extent of its height from its upper end, the chute 1 is wide enough to contain two vertical 55 rows of the rounds 2 in staggered relation and said chute narrows in width at the lower outlet end to a width suitable for one round at the outlet 3. Throughout the said major extent of its height, however, the chute 1 is of such a width that 60 the staggered inter-engagement of the rounds of the two rows maintains the rounds of each row out of engagement with each other. With this arrangement 65 a free rolling movement is possible for the

rounds. Thus it will be seen that the rounds on the left hand side of the chute will tend to roll in a clockwise direction down the left hand wall of the chute, and those on the right hand side will tend to 70 roll in a counter-clockwise direction down the right hand side of the chute, and this tendency will be unimpeded since the only rounds which are in engagement 75 with each other are those of different rows and which are accordingly tending to rotate in opposite directions, and this they can freely do without appreciable frictional rub.

The rounds are urged downwards by 80 means of a presser shoe 4 which presses down upon the uppermost round and is fitted with rollers 5 which actually engage the round, so that the round is permitted to rotate freely relative to the presser shoe 85 during its descent.

It will be understood that it is only necessary to make the walls of the chute 1 so narrow that the rounds 2 of each row are just out of engagement with each 90 other. A clearance of a small fraction of an inch between said rounds is quite sufficient. As the magazine narrows towards the bottom end the rounds of each row will become more widely spaced as shown, but, save for the lowermost round, which may engage both sides of the chute at the outlet 3, the rounds will all roll freely without appreciable rubbing. Actually, as will be clear from the drawing, the 95 lowermost round will always tend to be held, by the round immediately above it, against the same wall down which it has hitherto been rolling, and said lowermost round may thus be clear of the opposite wall and, like the other rounds, substantially free from rubbing.

As shown the presser shoe is fitted with 100 two pairs of the rollers 5, one pair being near the base end and the other near the nose end of the round. The rollers of each pair engage the round on each side of the dead centre and thus the presser shoe, which is pressed down by means of the spring 6, tends to remain correctly located 110 on the uppermost round. The spring 6 is of the well known zig-zag type and is in compression between the shoe 4 and the top of the magazine. Said spring 2 is capable of flexing sideways sufficiently 115 for the presser shoe to remain correctly in engagement with the round when it moves to the centre of the chute as it reaches the outlet.

The reference 7 designates a stop 125 element to restrain the lowermost round from passing through the outlet until the magazine is mounted on the gun. When the magazine is mounted on the gun said stop element is manually rotated about 130

pivot 7a to a position which leaves the rounds free to be fed to the gun.

Although the magazine has been referred to as vertical, it is quite clear that 5 it could be orientated in any other direction.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is 10 to be performed, we declare that what we claim is:—

1. A magazine for rounds of ammunition, comprising a chute through which the rounds are adapted to be fed 15 in a direction transversely to their length, said rounds being arranged in two rows in staggered relation, the chute being made of such a width that the staggered inter-engagement of the rounds of the two rows 20 maintains the rounds of each row out of engagement with each other, wherein the rounds are free to move through the chute with a rolling movement with each other and with the walls of the chute.

25 2. A magazine according to Claim 1, wherein the clearance between adjacent rounds of each row is only a small fraction of an inch.

3. A magazine according to Claim 1 or 2, wherein the rounds are pressed 30 through the chute by means of a presser element pressing on the hindermost round, said presser element being provided with anti-friction means such as rollers, whereby said hindermost round is 35 free to rotate as it moves through the chute.

4. A magazine according to Claim 3, wherein said chute narrows towards its outlet end to a width suitable for only one 40 round, and said presser element is capable of sideways movement corresponding to the sideways movement made by the hindermost round when approaching the outlet of the chute.

5. A magazine for rounds of ammunition substantially as herein described with reference to the accompanying drawings. 45

Dated this 14th day of June, 1945.

A. A. THORNTON,  
Chartered Patent Agents,  
24/27, High Holborn,  
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For the Applicants.

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584,743 COMPLETE SPECIFICATION

1 SHEET

*[This Drawing is a reproduction of the Original on a reduced scale.]*

FIG. 2.

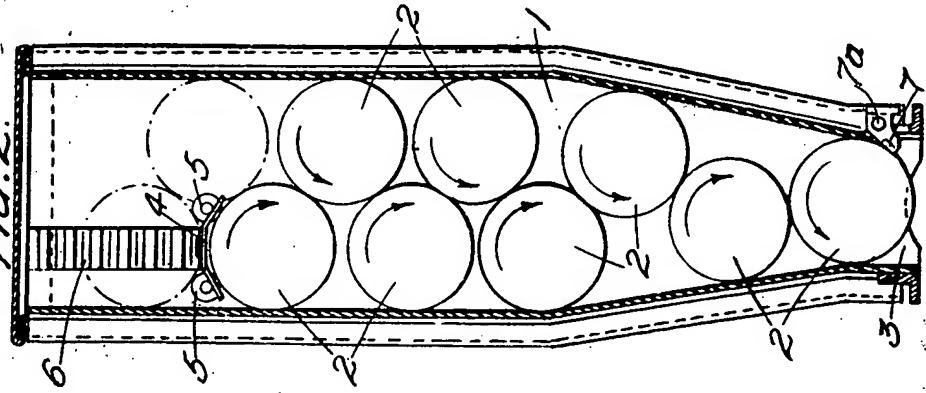


FIG. 1.

